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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/030,784 | 02/12/2002 | Axel Lang | 4598-59PUS | 6371 |

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EXAMINER

TRAN, BINH Q

ART UNIT PAPER NUMBER

3748

DATE MAILED: 04/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/030,784

Applicant(s)

LANG ET AL.

Examiner

BINH Q. TRAN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 9-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Receipt and entry of Applicant's Preliminary Amendment dated January 11, 2002 is acknowledged.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 9-19 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The step of **"determining a total energy output of the internal combustion engine within the predetermined time period"** has not clearly disclosed in the disclosure.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b)

only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 9, 11, 13, and 15-19 are rejected under 35 U.S.C. 102 (b) as being anticipated by Mitsutani et al. (Mitsutani) (Patent Number 5,724,809).

Regarding claim 9, Mitsutani discloses a process for detecting a state of a catalyst system (2) installed in an exhaust gas channel of an internal combustion engine (1) of a motor vehicle, through which catalyst (12) system exhaust gas from the internal combustion engine flows so that the exhaust gas can be purified, the process comprising the steps of: detecting at least one operating parameter of the catalyst system (T_{cat}) over a predetermined time period; determining a total energy output of the internal combustion engine within the predetermined time period (Q); and calculating a characteristic value based on a ratio of the at least one operating parameter to the total energy output (e.g. See Figs. 9-12; col. 13, lines 24-67; cols. 14-15, lines 1-67; col. 16, lines 1-64).

Regarding claim 11, Mitsutani further discloses that the step of generating a maintenance signal as a function of the characteristic value (See col. 16, lines 21-65).

Regarding claim 13, Mitsutani further discloses that the maintenance signal generating step includes generating of a maintenance signal when the characteristic value exceeds a predetermined threshold value (See col. 16, lines 21-65).

Regarding claim 15, Mitsutani further discloses that the step of determining the total energy output includes finding the total energy output based on a power-equivalent variable (e.g. See Figs. 9-12; col. 13, lines 24-67; cols. 14-15, lines 1-67; col. 16, lines 1-64).

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Regarding claim 16, Mitsutani further discloses that the total energy output is found based on a cumulative air quantity (e.g. See Figs. 9-12; col. 13, lines 24-67; cols. 14-15, lines 1-67; col. 16, lines 1-64).

Regarding claim 17, Mitsutani further discloses that the at least one operating parameter of the catalyst system comprises a catalyst temperature and an amount of one of the group consisting of HCs, CO, O₂, and NO_x in the exhaust gas (e.g. See Figs. 9-12; col. 13, lines 24-67; col. 14, lines 1-67).

Regarding claim 18, Mitsutani further discloses that the predetermined time period occurs within an acceleration phase of the motor vehicle (e.g. See Figs. 9-12; col. 13, lines 24-67; col. 16, lines 1-67).

Regarding claim 19, Mitsutani further discloses that the process is conducted within at least one of a predetermined lambda region and a predetermined temperature range (e.g. See Figs. 9-12; col. 13, lines 24-67; col. 14, lines 1-67).

Claims 9-17, and 19 are rejected under 35 U.S.C. 102 (b) as being anticipated by Mukaihira et al. (Mukaihira) (Patent Number 5,526,643).

Regarding claim 9, Mukaihira discloses a process for detecting a state of a catalyst system (Fig. 1) installed in an exhaust gas channel of an internal combustion engine (2) of a motor vehicle, through which catalyst (4) system exhaust gas from the internal combustion engine flows so that the exhaust gas can be purified, the process comprising the steps of: detecting at least one operating parameter of the catalyst system (Tx) over a predetermined time period; determining a total energy output of the internal combustion engine within the predetermined

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time period (Q_a); and calculating a characteristic value based on a ratio of the at least one operating parameter to the total energy output (e.g. See Figs. 2-6; col. 8, lines 25-67; col. 9, lines 1-50).

Regarding claim 10, Mukaihira further discloses the step of forming an average characteristic value from a predetermined number n of characteristic values (e.g. See Figs. 2-6; col. 8, lines 25-67; col. 9, lines 1-50; col. 11, lines 22-65).

Regarding claim 11, Mukaihira further discloses that the step of generating a maintenance signal (140) as a function of the characteristic value (See Fig. 1).

Regarding claim 12, Mukaihira further discloses the step of including generating a maintenance signal as a function of the average characteristic value (See Fig. 1).

Regarding claim 13, Mukaihira further discloses that the maintenance signal generating step includes generating of a maintenance signal when the characteristic value exceeds a predetermined threshold value (e.g. See Figs. 2-6; col. 8, lines 25-67; col. 9, lines 1-50).

Regarding claim 14, Mukaihira further discloses that the maintenance signal (140) generating step includes generating of a maintenance when the average characteristic value exceeds a predetermined threshold value (e.g. See Figs. 2-6; col. 8, lines 25-67; col. 9, lines 1-50).

Regarding claim 15, Mukaihira further discloses that the step of determining the total energy output includes forming the total energy output based on a power-equivalent variable (e.g. See Figs. 2-6; col. 8, lines 25-67; col. 9, lines 1-50).

Regarding claim 16, Mukaihira further discloses that the total energy output is found based on a cumulative air quantity (e.g. See Figs. 2-6; col. 8, lines 25-67; col. 9, lines 1-50).

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Regarding claim 17, Mukaihira further discloses that the at least one operating parameter of the catalyst system comprises a catalyst temperature and an amount of one of the group consisting of HCs, CO, O₂, and NO_x in the exhaust gas (e.g. See Figs. 2-6; col. 8, lines 25-67; col. 9, lines 1-50).

Regarding claim 19, Mukaihira further discloses that the process is conducted within at least one of a predetermined lambda region and a predetermined temperature range (e.g. See Figs. 2-6; col. 8, lines 25-67; col. 9, lines 1-50).

Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of five patents:

Hirota et al. (Patent Number 6,199,374), Kibe (Patent Number 5,842,341), Mukaihira et al. (Patent Number 5,400,592), and Hirota et al. (Patent Number 5,884,476) all disclose an exhaust gas purification for use with an internal combustion engine.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Binh Tran whose telephone number is (703) 305-0245. The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reach on (703) 308-2623. The fax phone number for this group is (703) 746-4561.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0861.

A handwritten signature in black ink, appearing to read 'Binh Tran', with a long, sweeping horizontal line extending to the right.

BT
April 04, 2003

Binh Tran
Patent Examiner
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